Observing Energy Everyday

Science: States of Matter

Every child is different. Do what works best for encouraging each child's exploration of this suggested activity.

OBJECTIVE OF THIS INVESTIGATION:

During daily routines, children notice and discuss how states of matter change due to temperature.

VOCABULARY:

- Solid
- Liquid
- Gas
- Cold
- Hot
- Change
- Heat
- Energy

PROGRESSION STEPS (SCIENCE: STATES OF MATTER):

Visit **STEMIE Learning Trajectories** for details
- Energy Observer

THIS INVESTIGATION:

- During a typical daily routine such as a walk, bike ride, bus ride, or car ride narrate what you notice about the environment in terms of states of matter.
- Ask children to help you determine why a certain state of matter might have changed.
- Examples might include:

  Following a snowfall, after some snow has had time to melt:
  - **"Wow! I notice so much snow on the sidewalk over there, but over here the sidewalk is just wet. What do you think happened to the snow?"**
  - Encourage children to take note if the snowy part of the sidewalk is in the shade or the sun.
  - Ask children to observe and describe how standing in the shade vs standing in the sun feels.
  - If children are unable to explain why the snow has melted, narrate making your own guess: **"I wonder if this part of the sidewalk gets more sun than that part. The sun is so warm. Maybe the warm sun melted all that snow into water."**

  Following a heavy rainfall , after the rain has had time to evaporate, soak into the ground, flow into drains, etc.:
  - **"Remember it was raining last night, and the ground was all wet? Hmm, but I now notice the ground is dry. What do you think happened to all the water?"**
  - Encourage and honor all guesses children make. **"Wow! I like how you're thinking and trying to figure it out !"**

ADAPTATIONS:

See **A Guide to Adaptations** for general ideas and strategies

Environment:
- Ensure children are able to experience the states of matter in whatever way makes most sense for them (e.g., seeing, feeling, touching, hearing).

Materials:
- Provide pictures of different states of matter you might see on the walk to help children identify them.

Instruction:
- Provide adequate wait time for children to process the question and share their ideas .

THIS INVESTIGATION (CONTINUED):

- Draw a parallel to a change in a state of matter children might have noticed elsewhere. **"Do you ever notice how when we boil water for pasta, there's all that steam. The water turns into a gas. I wonder if the rainwater on the ground turned into a gas too."**

ADAPTATIONS (CONTINUED):

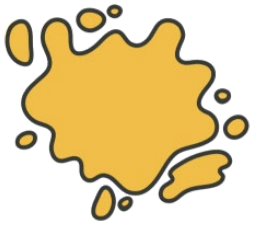
Instruction (continued)

- Prepare children for the walk by letting them know what is coming next and what you might do.
- If children do not respond to the questions or prompts, narrate your own observations and make your own guesses.

HOW TO CONTINUE THIS INVESTIGATION:

- Continue to discuss changes in states of matter during everyday routines:
  - **"What happens to the water when we put it in the freezer? Why? What about when we take the water back out?"**
  - Notice ice cream melting on a hot day.
  - Narrate what happens to water when you boil it.

SUPPORT MATERIALS:



Liquid

Solid

Gas

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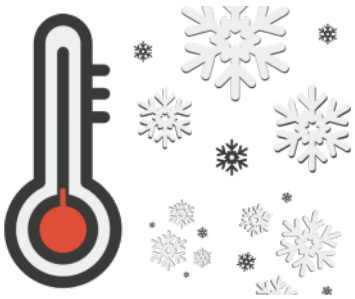
SCIENCE: STATES OF MATTER

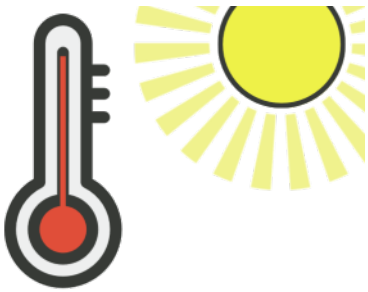
Every child is different. Do what works best for encouraging each child's exploration of this suggested activity.

SUPPORT MATERIALS:

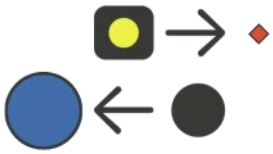
Use the empty ones to create your own!



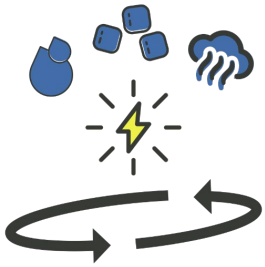
Cold



Hot



Change



Energy